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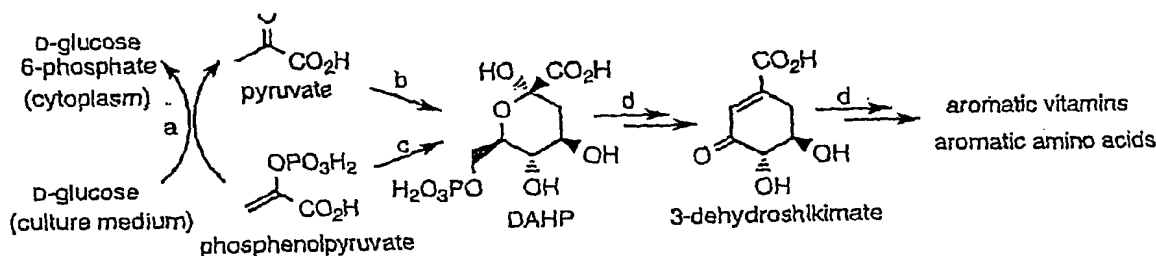
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(54) Title: METHODS AND MATERIALS FOR THE PRODUCTION OF SHIKIMIC ACID



(a) carbohydrate phosphotransferase; (b) KDPGal aldolase, *D*-erythrose 4-phosphate;  
(c) DAHP synthase, *D*-erythrose 4-phosphate; (d) shikimate pathway enzymes

(57) Abstract: Novel enzymes and novel enzymatic pathways for the pyruvate-based synthesis of shikimate or at least one intermediate thereof or derivative thereof, nucleic acids encoding the enzymes, cells transformed therewith, and kits containing said enzymes, cells, or nucleic acid. A KDPGal aldolase is used to perform condensation of pyruvate with *D*-erythrose 4-phosphate to form 3-deoxy-*D*-arabino-heptulosonate-7-phosphate (DAHP); a 3-dehydroquinase synthase is used to convert the DAHP to 3-dehydroquinone (DHQ); DHQ dehydratase can then convert DHQ to the key shikimate intermediate, 3-dehydroshikimate.